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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	HAWKINS, STEPHEN J.		
Application No.:	10/014625	Confirmation No.:	1418
Filed:	October 22, 2001	Group Art Unit	1771
Title:	POLYOLEFIN PRESSURE SENSITIVE ADHESIVE TAPE WITH AN IMPROVED PRIMING LAYER		

BRIEF ON APPEAL

Mail Stop: Appeal Brief-Patents
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P.O. Box 1450
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November 16, 2007 — Signed by: Madonna Schroeder

Date

Dear Sir:

This is an appeal from the Office Action mailed on May 21, 2007, finally rejecting claims 24, 26-28, 30-45, and 47.

Fees

☒ Any required fee under 37 CFR § 41.20(b)(2) will be made at the time of submission via EFS-Web. In the event fees are not or cannot be paid at the time of EFS-Web submission, please charge any fees under 37 CFR § 1.17 which may be required to Deposit Account No. 13-3723.

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A Notice of Appeal in this application was mailed on September 21, 2007, and was received in the USPTO on September 21, 2007.

Real Party In Interest

The real party in interest is 3M Company (formerly known as Minnesota Mining and Manufacturing Company) of St. Paul, Minnesota and its affiliate 3M Innovative Properties Company of St. Paul, Minnesota.

Related Appeals And Interferences

Appellants are unaware of any related appeals or interferences.

Status of Claims

Claims 24, 26-28, 30-45, and 47 are pending. Claims 24, 26-28, 30-45, and 47 stand rejected. The rejection of claims 24, 26-28, 30-45, and 47 is being appealed.

Status of Amendments

No amendments have been filed after the final rejection.

Summary Of Claimed Subject Matter

The claims at issue concern a method of making a tape wherein an adhesive layer and a primer layer are crosslinked together such that the problem of interfacial failure of the layers is at least reduced. Claim 45 is the only independent claim and reads as follows:

45. A method of making a tape comprising:

(a) providing a substrate;

(b) applying a primer to the substrate, the primer comprising:

a maleated rubber thermoplastic elastomer,

a non-halogenated polyolefin,

a resin having a glass transition temperature between about 0°C and about 100°C, and

a first crosslinking agent activated by actinic radiation;

(c) applying a pressure sensitive adhesive atop the primer, wherein the pressure sensitive adhesive is based on natural rubbers, synthetic rubbers, styrene block copolymers,

polyvinyl ethers, poly (meth)acrylates (including both acrylates and methacrylates), polyolefins, or silicones, and wherein the pressure sensitive adhesive further comprises a second crosslinking agent activated by actinic radiation;

(d) applying actinic radiation to crosslink the primer and the pressure sensitive adhesive.

Support for claim 45 can be found in at least the following excerpts:

page 3, lines 7-14 and 27-30;

page 6, lines 3-5;

page 7, lines 6-7;

page 8, line 1; and

page 11, line 30 to page 12, line 1.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 24, 26-28, 30-45, and 47 stand rejected under 35 USC 103(a) as being unpatentable over Babu et al. (US 5,112,882) taken in view of Davison (US 3,970,771), and further in view of St. Coeur et al. (US 6,048,610) taken as state of the art.

ARGUMENT

As stated in the last office action, mailed on May 21, 2007, the grounds for the above rejection are set forth in (I) Paragraph No. 3 of Paper No. 20061214 which is the Office Action mailed December 18, 2006, and (II) observations discussed in Paragraph No. 2 of the Office Action mailed on May 21, 2007. The texts of these paragraphs are discussed in turn below.

(I) Paragraph No. 3 of Paper No. 20061214

In Applicants' response dated October 18, 2006, claim 45 was amended to recite that the catalysts in the primer and adhesive layers can be activated by actinic radiation and that actinic radiation was applied to crosslink the two layers. It was explained that according to the method, the two layers are crosslinked together. In a subsequent response, Claim 45 was further amended to

comply with a 112 issue, but the amended claim just described is substantially the same as the currently pending claim. In the response dated October 18, 2006, we described why we felt that the amended claim 45 was patentable with respect to Babu, et al., Davison, and St. Coeur et al:

Not All Claim Limitations Are Taught or Suggested

Babu et al. discloses an adhesive composition having a crosslinking agent that can be cured using actinic radiation. Babu et al. mention that primers may be useful for improving adhesion to substrates, see col. 8, lines 50-56, but there is no disclosure relating to primers that may be cured by actinic radiation. Davison does not remedy this deficiency with Babu et al. because, at the very least, Davison does not disclose crosslinkable primer compositions. St. Coeur et al. disclose a primer composition comprising, as described in col. 1, line 66 to col. 2, line 7:

> "a maleic anhydride functionalized chlorinated polyolefin covalently bonded to a maleic anhydride functionalized thermoplastic copolymer by reacting the maleic anhydride functional groups on the chlorinated polyolefin and the thermoplastic copolymer with at least one crosslinking compound so that the maleic anhydride functionalized chlorinated polyolefin and the maleic anhydride functionalized thermoplastic copolymer form a crosslinked layer."

None of the crosslinking agents recited in St. Coeur (col. 3, lines 1-19) are useful for any type of reaction in which actinic radiation is used. Thus, St. Couer et al. do not remedy the deficiency described for Babu et al.

No Suggestion or Motivation to Combine References

One of ordinary skill, having Babu et al. before him, would not find any teaching, let alone one that is sufficient, that could be used to come up with the invention of currently amended claim 45. This would require, at the very least, one to read the two sentences in Babu et al. regarding primers (col. 8, lines 50-56), and come up with the claimed invention. This would clearly constitute impermissible hindsight. Davison cannot be said to provide this teaching simply because crosslinkable primer compositions are not disclosed. St. Coeur et al. cannot be

said to provide this teaching because: (i) they do not teach the use of crosslinking agents that can be activated by actinic radiation, and (ii) they do not teach that two layers could be coated and then crosslinked.

Regarding (i), it cannot be said that one of ordinary skill would have been motivated to use crosslinking agents that can be activated by actinic radiation because such agents would not crosslink the functional groups of the polymeric components. As for (ii), even if crosslinking agents that may be activated by actinic radiation were usable in their system, it is reasonably clear that St. Couer et al. desired to make a "crosslinked layer" as stated in the excerpt above, and not a pair of layers crosslinked together after they were coated, as recited in currently amended claim 45. It should also be noted that there is only one sentence that refers to adhesives in St. Couer, and it can be found in col. 3, lines 41-42:

> "Conventional pressure sensitive adhesives can be used in the tape of this invention."

In the Office Action which followed, dated December 18, 2006, the amended claim 45 described in the previous paragraph was rejected over Babu et al. taken in view of Davison, and in further view of St. Coeur. Paragraph No. 3 of this Office Action details the rejection. The Examiner referred to reasons of record, however, *these reasons no longer apply because the claim had been amended.* Thus, the previous rejection is considered moot.

The Examiner also made "additional observations" which touched on various points of our patentability arguments. For one, the Examiner states that because Babu et al. have disclosed a crosslinked adhesive on a support, "it would have been highly desirable from an ease of manufacturing concept if not only the psa, but also the sandwiched primer composition were each actinic radiation curable, such by having suitable radiation crosslinkers in both adhesive layers." This observation made by the Examiner still does not address the patentablity arguments that we presented, namely, that the combination of all three references does not teach all of the claimed limitations and that no motivation for combining would have existed at the time the invention was made. Applicant also submits that the Examiner has not supplied any factual evidence that manufacturing would be easier if both layers were crosslinked together.

Another observation made by the Examiner related to Applicants' alleged failure "to grasp the aforementioned process advantages by using actinic radiation activated crosslinkers in both the psa and primer layers of the state of the art reference St. Coeur" when we state that there is no suggestion of motivation for the reference to teach that two layers could be coated and then crosslinked". This observation made by the Examiner still does not address the patentablity arguments that we presented, namely, that the combination of all three references does not teach all of the claimed limitations and that no motivation for combining would have existed at the time the invention was made. Applicant also submits that the Examiner has not supplied any factual evidence that manufacturing would be easier if both layers were crosslinked together.

Another observation made by the Examiner related to our statement that the primer layer and the adhesive layer would not crosslink because the resins set forth in Davison are not crosslinkable. The Examiner stated that this was a broad statement and has yet to be proven of record. Applicant respectfully submits that this is not a broad statement, rather a statement made about the particular chemicals used in Davison.

(II) Observations discussed in Paragraph No. 2 of the Office Action mailed on May 21, 2007

The Examiner also made new "observations" in the last Office Action mailed May 21, 2007. Similar to the above, none of the observations made by the Examiner address the patentability arguments that we had pointed out. The Examiner states the following:

> "it is also believed that irradiating both layers at the same time after their coating onto a substrate is a parameter well within the skill of this technically sophisticated art."

Even if this were to be true, and Applicant is not saying that it is, the Examiner still does not address the patentablity argument related to the combination of references do not teach all of the claim limitations. Again, Applicant submits that the Examiner has not supplied any factual evidence that manufacturing would be easier if both layers were crosslinked together.

In summary, Applicant respectfully submits that the Examiner has not met the required initial burden for establishing a *prima facie* case of obviousness.

CONCLUSION

For the foregoing reasons, appellants respectfully submit that the Examiner has erred in rejecting this application. Please reverse the Examiner on all counts.

Respectfully submitted,

11-15-07
Date

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CLAIMS APPENDIX

Claims 1-23. Cancelled

24. (Amended) The method of claim 45 wherein the maleated thermoplastic elastomer is a block copolymer comprising one or more polystyrene blocks, a rubber, or a styrene-ethylene-butene-styrene type block copolymer.

25. Cancelled

26. (Amended) The method of claim 45 wherein the resin is a hydrocarbon resin.

27. (Amended) The method of claim 45 wherein the non-halogenated polyolefin comprises a $C_3 - C_{30}$ α-olefin monomer.

28. (Amended) The method of claim 45 wherein the non-halogenated polyolefin comprises a polyhexene or a polyoctene.

29. Cancelled

30. (Amended) The method of claim 45 wherein the first crosslinking agent is an aldehyde, a ketone, a quinone, a thioxanthone, or a vinyl halomethyl-sym-triazine.

31. (Amended) The method of claim 45 wherein the first crosslinking agent is 2,4-bis(trichloromethyl)-6-4'-methoxyphenyl-sym-triazine.

32. (Amended) The method of claim 45 wherein the primer further comprises an aliphatic, alicyclic, heterocyclic, cycloaliphatic, or aromatic epoxy having at least one oxirane ring.

33. (Amended) The method of claim 45 wherein the primer further comprises an epoxy resin comprising a cyclohexene oxide group, a glycidyl ether monomer, or a bisphenol A-epichlorohydrin.

34. (Amended) The method of claim 45 wherein the primer further comprises a multi-functional acrylate.

35. (Amended) The method of claim 45 wherein the primer further comprises fumed amorphous silica.

36. (Amended) The method of claim 45 wherein the primer further comprises a filler.

37. (Amended) The method of claim 45 wherein the pressure sensitive adhesive is a polyolefin based pressure sensitive adhesive.

38. (Amended) The method of claim 45 wherein the pressure sensitive adhesive is a poly-α-olefin comprising one or more monomer units derived from a $C_5 - C_{30}$ α-olefin monomer.

39. (Amended) The method of claim 45 wherein the pressure sensitive adhesive is a poly-α-olefin comprising one or more monomer units derived from $C_6 - C_{14}$ α, ω-dienes, conjugated dienes, trienes, terpenes, or alkenyl-norbornenes.

40. (Amended) The method of claim 45 wherein the pressure sensitive adhesive has a glass transition temperature in the range of about -70° to about 0° C.

41. (Amended) The method of claim 45 wherein the pressure sensitive adhesive comprises a tackifying resin.

42. (Amended) The method of claim 45 wherein the second crosslinking agent is activated by ultraviolet light or heat.

43. (Amended) The method of claim 45 wherein the second crosslinking agent is an aldehyde, a ketone, a quinone, a thioxanthone, or a vinyl halomethyl-sym-triazine.

44. (Amended) The method of claim 45 wherein the substrate comprises a material selected from the group consisting of polyesters, polyolefins, papers, foils, polyacrylates, polyurethanes, perfluoropolymers, polycarbonates, ethylene vinyl acetates, vinyl, fabrics, foam, polymer coated papers,and retroreflective sheeting.

45. (Amended) A method of making a tape comprising:

(a) providing a substrate;

(b) applying a primer to the substrate, the primer comprising:

a maleated rubber thermoplastic elastomer,

a non-halogenated polyolefin,

a resin having a glass transition temperature between about 0°C and about 100°C, and

a first crosslinking agent that may be activated by actinic radiation;

(c) applying a pressure sensitive adhesive atop the primer, wherein the pressure sensitive adhesive is based on natural rubbers, synthetic rubbers, styrene block copolymers, polyvinyl ethers, poly (meth)acrylates (including both acrylates and methacrylates), polyolefins, or silicones, and wherein the pressure sensitive adhesive further comprises a second crosslinking agent that may be activated by actinic radiation;

(d) applying actinic radiation to crosslink the primer and the pressure sensitive adhesive.

46. Cancelled

47. (New) A tape prepared according to the method of claim 45.